

WHAT IS CLAIMED IS:

1. A communication network, comprising a plurality of node devices by using a plurality of communication channels, each said node device comprising:

alteration means for changing a communication channel to which a signal is inputted, and a communication channel from which a signal is outputted, according to a predetermined pattern; and

control means for controlling an alteration time at which alteration of the communication channels is performed by said alteration means,

wherein said control means controls the alteration times corresponding to each node device in such a manner as to make a predetermined time difference between alteration times respectively corresponding to at least two said node devices.

2. The network according to claim 1, wherein the alteration time is a time at which the alteration of the transmission channels according to the predetermined pattern is started.

3. The network according to claim 1, wherein said alteration means changes connections between a plurality

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of storing means, which temporarily store signals respectively received from the plurality of communication channels, and a plurality of the communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to said predetermined pattern.

4. The network according to claim 1, wherein said alteration means changes a plurality of storing means, which temporarily store signals respectively received from the communication channels, and a plurality of the communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to said predetermined pattern.

5. The network according to claim 1, wherein said predetermined pattern is established so that input signals are not concurrently outputted to a same communication channel.

6. The network according to claim 1, wherein said control means controls the alteration times respectively corresponding to adjacent node devices.

7. The network according to claim 1, wherein said

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control means controls the alteration times so that when a signal outputted by a first said node device is received by a second said node device, a time period between reception and output of the signal by said second node device is decreased.

8. The network according to claim 1, wherein said control means performs the controlling according to control information transmitted by another said node device.

9. The network according to claim 8, wherein said node devices perform packet communications, and wherein the control information is communicated by using a control packet to be used for communicating control information among said node devices.

10. The network according to claim 8, wherein said node devices perform packet communications, and wherein the control information is communicated by using a data packet to be used for communicating data among said node devices.

11. A node device for performing communications by using a plurality of communication channels, comprising:

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alteration means for changing a communication channel, to which a signal is inputted, and a communication channel, from which a signal is outputted, according to a predetermined pattern; and

control means for controlling an alteration time at which alteration of the communication channels is performed by said alteration means,

wherein said control means controls the alteration times corresponding to each node device in such a manner as to make a predetermined time difference between the alteration time and an alteration time corresponding to another node device.

12. The node device according to claim 11, wherein the alteration time is a time at which the alteration of the transmission channels according to the predetermined pattern is started.

13. The node device according to claim 11, wherein said alteration means changes connections between a plurality of storing means, which temporarily store signals respectively received from the plurality of communication channels, and a plurality of communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to

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14. The node device according to claim 11, wherein said alteration means changes a plurality of storing means, which temporarily store signals respectively received from the plurality of communication channels, and a plurality of communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to said predetermined pattern.

16. The node device according to claim 11, wherein said control means controls the alteration times respectively corresponding to said node device and an adjacent node device.

17. The node device according to claim 11, wherein said control means controls the alteration times so that when said node device receives a signal outputted by another node device, a time period between reception and

output of the signal by said node device is decreased.

18. The node device according to claim 11, wherein said control means performs the controlling according to control information transmitted by another node device.

19. The node device according to claim 18, which is adapted to perform packet communications, wherein the control information is communicated by using a control packet to be used for communicating control information among plural node devices.

20. The node device according to claim 18, which is adapted to perform packet communications, wherein the control information is communicated by using a data packet to be used for communicating data among plural node devices.

21. A method for controlling a communication network, adapted to connect a plurality of node devices by using a plurality of communication channels, comprising:

a process for controlling the node device comprising the steps of:

changing a communication channel to which a

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controlling an alteration time at which  
alteration of the communication channels is performed,

22. The method according to claim 21, wherein the alteration time is a time at which the alteration of the transmission channels according to the predetermined pattern is started.

23. The method according to claim 21, wherein said changing step includes changing connections between a plurality of storing means, which temporarily store signals respectively received from the plurality of communication channels, and a plurality of communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to said predetermined pattern.

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27. The method according to claim 21, wherein said controlling step includes controlling the alteration times so that when a signal outputted by a first node device is received by a second node device, a time period between reception and output of the signal by the second node device is decreased.



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wherein said controlling step includes controlling the alteration times corresponding to each node device in such a manner as to make a predetermined time difference between the alteration time and an alteration time corresponding to another node device.

32. The method according to claim 31, wherein the alteration time is a time at which the alteration of the transmission channels according to the predetermined pattern is started.

33. The method according to claim 31, wherein said controlling step includes changing connections between a plurality of storing means, which temporarily store signals respectively received from the plurality of communication channels, and a plurality of communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to said predetermined pattern.

34. The method according to claim 31, wherein said controlling step includes changing a plurality of storing means, which temporarily store signals respectively received from the plurality of communication channels,

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and a plurality of communication channels, which are to be used for outputting the signals stored in the plurality of storing means, according to said predetermined pattern.

35. The method according to claim 31, wherein said predetermined pattern is established so that input signals are not concurrently outputted to a same communication channel.

36. The method according to claim 31, wherein said controlling step includes controlling the alteration times respectively corresponding to adjacent node devices.

37. The method according to claim 31, wherein said controlling step includes controlling the alteration times so that when a given node device receives a signal outputted by another node device, a time period between reception and output of the signal by the given node device is decreased.

38. The method according to claim 31, wherein said controlling step includes performing the controlling according to control information transmitted by another node device.

39. The method according to claim 38, wherein the node devices are adapted to perform packet communications, and wherein the control information is communicated by using a control packet to be used for communicating control information among the node devices.

40. The method according to claim 38, wherein the node devices are adapted to perform packet communications, and wherein the control information is communicated by using a data packet to be used for communicating data among the node devices.

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